AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for analyzing a loop interface failure comprising ~~the steps of~~:

detecting ~~per route that~~ whether abnormalities occur in ~~all~~ first and second loop interfaces which are multiplexed and to which devices are connected[[,]]; and

when the abnormalities are detected in both the first and second loop interfaces ~~are detected~~, detaching all devices connected to at least one of the first and second loop interfaces.

2. (Currently amended) The method for analyzing a loop interface failure as claimed in claim 1, wherein the ~~step of~~ detecting whether ~~the~~ abnormalities occur in the first and second loop interfaces ~~includes the steps of~~ comprises:

detecting ~~that~~ whether receptions of commands have ceased in one of the first and second loop interfaces, which commands are regularly transmitted through the first and second loop interfaces to which the devices are connected[[,]];

informing the ~~routes each~~ other of the first and second loop interfaces that the receptions of the commands have ceased[[,]]; and

when ~~detecting that~~ receptions of the commands have ceased in ~~all routes~~ both the first and second loop interfaces, ~~detecting~~ indicating that abnormalities occur in ~~all of~~ the first and second loop interfaces.

3. (Currently amended) The method for analyzing a loop interface failure as claimed in claim 1, further comprising ~~a step of~~ performing a loop diagnosis for identifying a faulty device by accessing ~~from a route~~ one of the first and second loop interfaces, in which all of the devices were detached from the loop interface, ~~so that the loop abnormality has been resolved, to another route~~ from the other loop interface.

4. (Currently amended) The method for analyzing a loop interface failure as claimed in claim 3, further comprising ~~the steps of~~:

when the loop abnormalities occur in all of the multiplexed loop interfaces, judging ~~per route~~ whether the loop abnormality is resolved in a certain period of time~~, and~~;

when the loop abnormalities were resolved in the certain period of time, inquiring disk controlling means whether they detached all of the devices[[,]]; and

when all of the devices were detached by the disk controlling means, performing countermeasure processing against a double-route link failure including ~~a loop diagnosis by the step of~~ performing ~~the~~ loop diagnosis.

5. (Currently amended) The method for analyzing a loop interface failure as claimed in claim 4, wherein the certain period of time is ~~so set as a little~~ longer than a period of time necessary for the disk controlling means to detach all of the devices when the loop abnormalities occur in all of the multiplexed loop interfaces.

6. (Original) The method for analyzing a loop interface failure as claimed in claim 3, wherein a device determined as faulty in the loop diagnosis is detached from the loop interface, and the loop interface is to be in use again.

7. (Currently amended) The method for analyzing a loop interface failure as claimed in claim 6, wherein the loop diagnosis for identifying a faulty device is performed by accessing ~~to~~ disk controlling means connected to ~~another~~ one of the loop ~~interface~~ interfaces via the disk controlling means connected to the loop interface which is in use again.

8. (Currently amended) A <u>computer</u> program <u>tangibly</u> embodied ~~in electrical signals~~ <u>on a computer readable medium</u>, said program enabling a computer to execute ~~each step as claimed in~~ <u>the method of</u> claim 1.

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9. (Original) A computer-readable storage medium recording thereon a program which causes a computer to perform said steps of claim 1.

10. (Currently amended) A system for analyzing a loop interface failure comprising:

first and second loop connection switching means for connecting and detaching devices to and from respective first and second multiplexed loop interfaces;

first and second disk controlling means for controlling the first and second loop connection switching means; and

a first ~~interface~~ communication means for transmitting and receiving data ~~each other~~ between the first and second disk controlling means;

wherein the first and second disk controlling means each have, when detecting that abnormalities occur in all of the loop interfaces, functions of outputting to the first and second loop connection switching means instructions to detach all devices connected to ~~at least one~~ either one of the first and second loop interfaces.

11. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, wherein either of the first and second disk controlling means, when detecting that receptions of commands have ceased, which commands are regularly transmitted through the first and second loop interfaces to which the devices managed by the first and second disk controlling means are connected, inform via the first ~~interface~~ communication means to ~~another~~ the other disk controlling means that the receptions of the commands have ceased, and when detecting that receptions of commands have ceased in all disk controlling means, detect that abnormalities occur in all of the loop interfaces.

12. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, wherein each of the first and second disk controlling means ~~includes~~ comprises loop diagnostic means for performing a loop diagnosis to identify a faulty device by accessing ~~to disk controlling means connected to another~~ the other loop interface via the first communication means and the other disk controlling means, devices connected to the other

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loop interface ~~in which all connected devices were~~ having been detached so that the detected loop abnormality has been resolved.

13. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 12, wherein the loop diagnostic means detaches a device determined as faulty in the loop diagnosis from the other loop interface so as to allow the other loop interface to be in use again.

14. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 13, wherein the loop diagnostic means ~~performs~~ is arranged to perform the loop diagnosis for identifying a faulty device by accessing ~~to disk controlling means connected to another loop interface via the disk controlling means connected to~~ the loop interface which is in use again.

15. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, further comprising:

first and second enclosure service means, each of which connects to the respective disk controlling means and to the devices through one loop interface of the multiplexed loop interfaces; and

a second ~~interface~~ communication means for transmitting and receiving data ~~each other~~ between the loop ~~interface and another loop interface~~ interfaces;

wherein either of the ~~enclosure service means communicates with other~~ first and second enclosure service means[[,]] controls the loop connection switching means when abnormalities are detected in all of the loop interfaces so as to detach all devices connected to ~~the~~ either loop interface.

16. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 15, wherein each of the enclosure service means ~~includes~~ comprises, when detecting that a reception of commands has ceased, which commands are regularly transmitted through

a loop interface to which devices managed by the enclosure service means are connected, means for informing via the second ~~interface~~ <u>communication means</u> to ~~another~~ <u>the other</u> enclosure service means that the reception of commands has ceased, and when ~~detected~~ <u>detecting</u> that receptions of commands have ceased in all of the enclosure service means, detects that abnormalities occur in all of the loop interfaces.

17. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 15, wherein <u>each of</u> the enclosure service means, when the loop abnormalities occur in all of the multiplexed loop interfaces managed by the enclosure service means, judge whether the loop abnormalities are resolved in a certain period of time, and when the loop abnormalities were resolved in the certain period of time, ~~inquire~~ <u>inquires</u> the <u>first and second</u> disk controlling means whether they detached all of the devices, and when all of the devices ~~were~~ <u>are</u> detached by the <u>disk</u> controlling ~~device~~ <u>means</u>, ~~perform~~ <u>performs</u> countermeasure processing against a double-route link failure including a loop diagnosis.

18. (Currently amended) The system for analyzing a loop interface failure as claimed in claim ~~15~~ <u>17</u>, wherein the certain period of time is ~~so set as a little~~ longer than a period of time necessary for the <u>first and second</u> disk controlling means to detach all of the devices when the loop abnormalities occur in all of the multiplexed loop interfaces.

19. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, wherein the loop interface ~~is~~ <u>comprises</u> a Fibre Channel Arbitrated Loop (FC-AL).

20. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, wherein the devices ~~are~~ <u>comprise</u> hard disk devices.

21. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 10, wherein <u>each of</u> the disk controlling means monitors abnormalities in a plurality of loop interfaces.

22. (Currently amended) The system for analyzing a loop interface failure as claimed in claim 15, wherein each of the enclosure service means monitors abnormalities in a plurality of loop interfaces.

23. (Currently amended) A disk unit device, ~~wherein the~~ comprising:

first and second enclosure service means for connecting to a disk controlling means, ~~the second service means, the~~;

first and second loop connection switching means connected to a respective enclosure service means; and ~~the~~

devices whose connections to first and second loop interfaces are controlled by respective loop connection means, ~~which are claimed in claim 15, are detached from the disk controlling means as claimed in claim 10 to thereby form an independent disk unit means~~; wherein the enclosure service means are arranged to communicate with each other, and to control the loop connection switching means when abnormalities are detected in all of the loop interfaces so as to detach all devices connected to at least one of the loop interfaces.

24. (Currently amended) The disk unit device as claimed in claim 23, wherein each of the enclosure service means ~~includes,~~ comprises:

when detecting that a reception of commands has ceased, which commands are regularly transmitted through ~~a~~ the first and second loop interface to which devices managed by the enclosure service means are connected, means for informing via the ~~second~~ other loop interface to ~~another~~ the other enclosure service means that the reception of commands has ceased[[,]]; and

when ~~detected~~ detecting that receptions of commands have ceased in all of the enclosure service means, means for informing ~~detects~~ that abnormalities occur in all of the loop interfaces.

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25. (Currently amended) The disk unit device as claimed in claim 23, wherein ~~the~~ each loop

interface ~~is~~ comprises a Fibre Channel Arbitrated Loop (FC-AL).

26. (Currently amended) The disk unit device as claimed in claim 23, wherein the devices

~~are~~ comprise hard disk devices.

27. (Currently amended) A computer program tangibly embodied on a machine readable

medium that instructs ~~for letting~~ a computer to execute each means as claimed in claim 23.